

High Performance End Mills for Aerospace materials and other demanding applications.

VALID THROUGH JULY 31ST 2022

TiNox-Cut End Mills are application-specific for the machining of tough materials and are guaranteed to deliver unmatched metal removal rates and tool life.

**SAVE
57%**

Four end mill types for semi-roughing and finishing applications

- Impressive surface roughness results when compared to traditional end mills
- Advanced PVD applied coatings for heat and wear resistance
- Made from premium ultra-fine grade carbide with a maximized transverse rupture strength for high impact applications
- Axial internal coolant channel design for maximum chip evacuation performance and chip cooling ability
- Weldon flat shank construction that mates with an anti-pullout pin lock system available in EMUGE-FRANKEN FPC Milling Chucks
- Standard corner radius offering available along with modification service located in the USA



NEW TiNox-Cut N
5-Flute Design for Roughing-Finishing Applications
Ideal for Titanium Alloys

TiNox-Cut NF
for Inconel Applications

TiNox-Cut Base
for Stainless Steel Applications

TiNox-Cut NF

High performance roughing tool for difficult to machine Nickel Alloys

TiNox-Cut N

High performance tool specially designed for machining of Titanium and Titanium Alloys

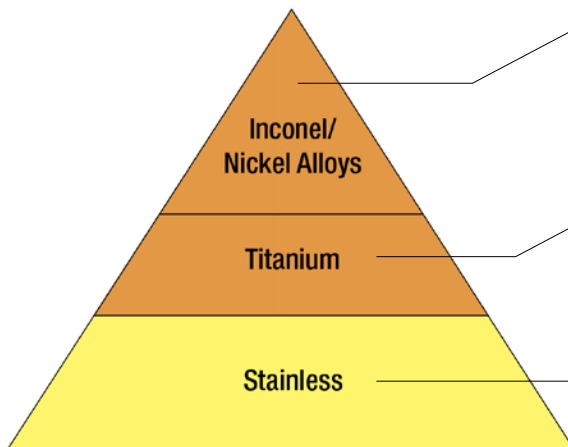
TiNox-Cut Trochoidal

High metal removal rate reduces stress and vibration for difficult materials

TiNox-Cut Base

Universal tool for machining of Stainless and acid-resistant steels

S	2.6
	2.5
	2.4
	2.3
	2.2
S	2.1
	1.3
	1.2
M	1.1
	4.1
	3.1
	2.1
1.1	



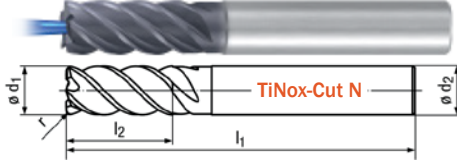


HIGH PERFORMANCE CARBIDE END-MILLS FOR AEROSPACE MATERIALS

5-FLUTE

ROUGHER FINISHER

- Internal coolant
- Especially made for Titanium Alloys
- For efficient machining of Stainless Steel
- Special geometry prevents vibration
- ALCR coating

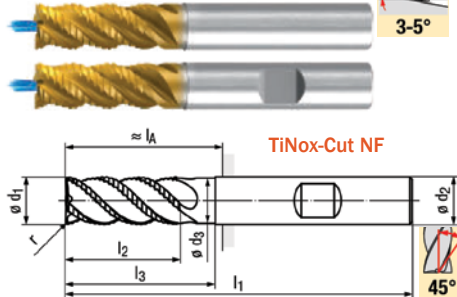


Standard length - Cylindrical Shank					
d ₁	l ₂	l ₁	d ₂	Chamfer	PART#
1/4	3/4	2.1/2	1/4	0.005	2962LZ-0250
5/16	3/4	2.1/2	5/16	0.005	2962LZ-03125
3/8	7/8	2.1/2	3/8	0.008	2962LZ-0375
1/2	1.1/4	3	1/2	0.015	2962LZ-0500
5/8	1.1/4	3.1/2	5/8	0.008	2962LZ-0625
3/4	1.1/2	4	3/4	0.012	2962LZ-0750
3/4	1.3/4	4.1/2	1	0.012	2962LZ-1000

Standard length - Corner Radius - Cylindrical Shank					
d ₁	l ₂	l ₁	Ød ₂	r	PART#
1/4	3/4	2.1/2	1/4	0.015	2966LZ-025015
1/4	3/4	2.1/2	1/4	0.030	2966LZ-025030
5/16	3/4	2.1/2	5/16	0.015	2966LZ-031015
5/16	3/4	2.1/2	5/16	0.030	2966LZ-031030
3/8	7/8	2.1/2	3/8	0.015	2966LZ-037015
3/8	7/8	2.1/2	3/8	0.030	2966LZ-037030
1/2	1.1/4	3	1/2	0.015	2966LZ-050015
1/2	1.1/4	3	1/2	0.030	2966LZ-050030
1/2	1.1/4	3	1/2	0.060	2966LZ-050060
1/2	1.1/4	3	1/2	0.090	2966LZ-050090
1/2	1.1/4	3	1/2	0.120	2966LZ-050120
5/8	1.1/4	3.1/2	5/8	0.015	2966LZ-062015
5/8	1.1/4	3.1/2	5/8	0.030	2966LZ-062030
5/8	1.1/4	3.1/2	5/8	0.060	2966LZ-062060
3/4	1.1/2	4	3/4	0.015	2966LZ-075015
3/4	1.1/2	4	3/4	0.030	2966LZ-075030
3/4	1.1/2	4	3/4	0.060	2966LZ-075060
3/4	1.1/2	4	3/4	0.090	2966LZ-075090
3/4	1.1/2	4	3/4	0.120	2966LZ-075120
1	1.3/4	4.1/2	1	0.015	2966LZ-100015
1	1.3/4	4.1/2	1	0.030	2966LZ-100030
1	1.3/4	4.1/2	1	0.060	2966LZ-100060
1	1.3/4	4.1/2	1	0.090	2966LZ-100090
1	1.3/4	4.1/2	1	0.120	2966LZ-100120

4 & 5 FLUTE SEMI-FINISHER

- Fine semi-finishing profile
- Variable index
- Ideal for difficult to cut materials such as nickel alloys (Inconel) and Titanium.
- Axial internal coolant
- TIN/TIALN PVD coating



PART#										
d ₁	l ₂	l ₃	l ₁	d ₃	l ₄	d ₂	l _a	# Fl.	Cylindrical Shank	Weldon Shank
1/4	17/32	3/4	2.1/2	0.236	7/8	3/8	15/16	4	2648TZ-0250	2649TZ-0250
5/16	3/4	7/8	2.1/2	0.295	15/16	3/8	15/16	4	2648TZ-03125	2649TZ-03125
3/8	7/8	1.1/8	2.3/4	0.358	3/8	1.3/16	4	2648TZ-0375	2649TZ-0375	
1/2	1.1/8	1.3/8	3.1/4	0.480	—	1/2	1.15/32	4	2648TZ-0500	2649TZ-0500
5/8	1.1/4	1.1/2	3.1/2	0.605	—	5/8	1.19/32	4	2648TZ-0625	2649TZ-0625
3/4	1.1/2	1.7/8	4	0.730	—	3/4	1.31/32	4	2648TZ-0750	2649TZ-0750
1	1.3/4	2.5/8	5	0.969	—	1	1.23/32	5	2648TZ-1000	2649TZ-1000



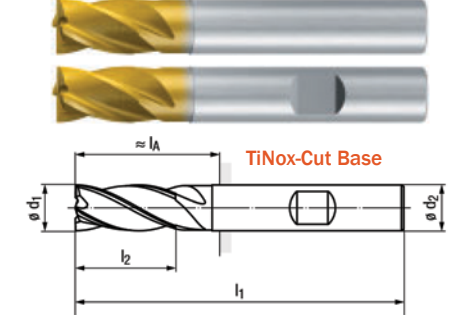
SAME AS ABOVE WITHOUT COOLANT HOLE

PART#										
d ₁	l ₂	l ₁	d ₃	d ₂	# Fl.	Cylindrical Shank	Weldon Shank			
1/4	17/32	2.1/2	0.236	1/4	4	2958T-0250	—			
5/16	3/4	2.1/2	0.295	5/16	4	2958T-03125	—			
3/8	7/8	2.3/4	0.358	3/8	4	2958T-0375	—			
1/2	1.1/8	3.1/4	0.480	1/2	4	2958T-0500	2959T-0500			
5/8	1.1/4	3.1/2	0.605	5/8	4	2958T-0625	2959T-0625			
3/4	1.1/2	4	0.730	3/4	4	2958T-0750	2959T-0750			
1	1.3/4	5	0.969	1	5	2958T-1000	2959T-1000			

FRANKEN TiNox-Cut End Mills are application-specific for the machining of tough materials and are guaranteed to deliver unmatched metal removal rates and tool life.

4-FLUTE ROUGHER FINISHER

- Especially suitable for Stainless Steel materials
- Suitable for Titanium, Alloyed Steels, HPC roughing and finishing
- Variable spacing
- TIN/TIALN coating

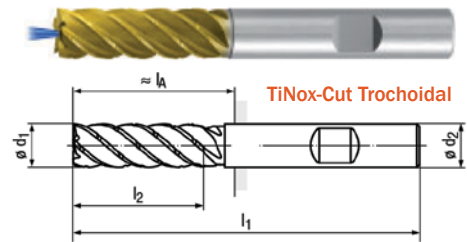


Stub Length							PART#	
d ₁	l ₂	l ₁	l _a	d ₂	l _a	Chamfer	Cylindrical Shank	Weldon Shank
1/8	1/4	2	5/8	1/4	5/8	0.003	2975T-0125	—
3/16	3/8	2	5/8	1/4	5/8	0.005	2975T-01875	—
1/4	1/2	2	—	1/4	5/8	0.005	2975T-0250	—
5/16	9/16	2.1/4	—	5/16	7/8	0.005	2975T-03125	—
3/8	5/8	2.1/2	—	3/8	15/16	0.008	2975T-0375	—
1/2	5/8	2.3/4	—	1/2	31/32	0.008	2975T-0500	2976T-0500
5/8	3/4	3	—	5/8	1.3/32	0.008	2975T-0625	2976T-0625
3/4	1	3.1/2	—	3/4	1.15/32	0.012	2975T-0750	2976T-0750

Standard Length								
d ₁	l ₂	l ₁	l _a	d ₂	l _a	Chamfer	Cylindrical Shank	Weldon Shank
1/8	3/8	2.1/4	7/8	1/4	7/8	0.003	2977T-0125	—
3/16	9/16	2.1/4	7/8	1/4	7/8	0.005	2977T-01875	—
1/4	3/4	2.1/2	—	1/4	1.1/8	0.005	2977T-0250	—
5/16	13/16	2.1/2	—	5/16	1.1/8	0.005	2977T-03125	—
3/8	7/8	2.3/4	—	3/8	1.3/16	0.008	2977T-0375	—
1/2	1	3	—	1/2	1.7/32	0.008	2977T-0500	2978T-0500
5/8	1.1/4	3.1/2	—	5/8	1.19/32	0.008	2977T-0625	2978T-0625
3/4	1.1/2	4	—	3/4	1.31/32	0.012	2977T-0750	2978T-0750

4 & 5 FLUTE TROCHOIDAL

- High performance tool for trochoidal milling
- Especially suitable for difficult-to-cut materials such as Titanium
- TIN/TIALN coating
- Newly developed geometry with chip breaker
- Low-vibration machining
- Axial depths of cut up to 4xD
- Axial internal coolant
- Weldon shank



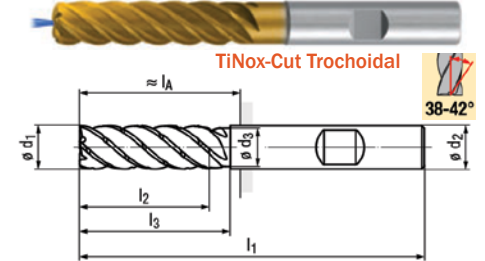
2xD - Standard length								
d ₁	l ₂	l ₁	d ₂	l _a	Chamfer	# Flutes	Cylindrical Shank	Weldon Shank
1/4	1/2	2.1/4	1/4	7/8	0.005	4	2577TZ-0250	—
5/16	13/16	2.1/2	5/16	1.1/8	0.005	5	2577TZ-03125	—
3/8	7/8	3	3/8	1.7/16	0.008	5	2577TZ-0375	—
1/2	1	3.1/4	1/2	1.15/32	0.008	5	2577TZ-0500	—
5/8	1.1/4	3.3/4	5/8	1.27/32	0.008	5	2577TZ-0625	—
3/4	1.1/2	4.1/4	3/4	2.7/32	0.012	5	2577TZ-0750	—

3xD - Long length								
d ₁	l ₁	l ₂	d ₂	r	l _a	# Flutes	Cylindrical Shank	Weldon Shank
1/4	3/4	2.1/2	1/4	1.1/8	0.005	4	2579TZ-0250	—
5/16	1	2.3/4	5/16	1.3/8	0.005	5	2579TZ-03125	—
3/8	1.1/8	3.1/4	3/8	1.11/16	0.008	5	2579TZ-0375	—
1/2	1.1/2	3.3/4	1/2	1.31/32	0.008	5	2579TZ-0500	—
5/8	1.7/8	4.1/4	5/8	2.11/32	0.008	5	2579TZ-0625	—
3/4	2.1/4	5	3/4	2.31/32	0.012	5	2579TZ-0750	—

4xD - Extra long length								
d ₁	l ₁	l ₂	d ₂	r	l _a	# Flutes	Cylindrical Shank	Weldon Shank
1/4	1	2.3/4	1/4	1.3/8	0.005	4	2581TZ-0250	—
5/16	1.1/4	3	5/16	1.5/8	0.005	5	2581TZ-03125	—
3/8	1.1/2	3.3/4	3/8	2.3/16	0.008	5	2581TZ-0375	—
1/2	2	4.1/4	1/2	2.15/32	0.008	5	2581TZ-0500	—
5/8	2.1/2	5	5/8	3.3/32	0.008	5	2581TZ-0625	—
3/4	3	6	3/4	3.31/32	0.012	5	2581TZ-0750	—

4 & 5 FLUTE TROCHOIDAL WITH CORNER RADIUS

- High performance tool for trochoidal milling
- Especially suitable for difficult-to-cut materials such as Titanium
- TIN/TIALN coating
- Newly developed geometry with chip breaker
- Low-vibration machining
- Axial depths of cut up to 4xD
- Axial internal coolant
- Weldon shank



3xD - Corner Radius									PART#	
d ₁	l ₁	l ₂	d ₂	r	l _a	# Flutes	Weldon Shank			
1/4	2.1/2	3/4	1/4	0.010	1.1/8	4	3911TZ-025010			
1/4	2.1/2	3/4	1/4	0.015	1.1/8	4	3911TZ-025015			
1/4	2.1/2	3/4	1/4	0.020	1.1/8	4	3911TZ-025020			
1/4	2.1/2	3/4	1/4	0.030	1.1/8	4	3911TZ-025030			
1/4	2.1/2	3/4	1/4	0.060	1.1/8	5	3911TZ-025060			
5/16	2.3/4	1	5/16	0.015	1.3/8	5	3911TZ-031015			
5/16	2.3/4	1	5/16	0.030	1.3/8	5	3911TZ-031030			
5/16	2.3/4	1	5/16	0.060	1.3/8	5	3911TZ-031060			
3/8	3.1/4	1.1/8	3/8	0.010	1.11/16	5	3911TZ-037010			
3/8	3.1/4	1.1/8	3/8	0.015	1.11/16	5	3911TZ-037015			
3/8	3.1/4	1.1/8	3/8	0.020	1.11/16	5	3911TZ-037020			
3/8	3.1/4	1.1/8	3/8	0.030	1.11/16	5	3911TZ-037030			
3/8	3.1/4	1.1/8	3/8	0.060	1.11/16	5	3911TZ-037060			
3/8	3.1/4	1.1/8	3/8	0.090	1.11/16	5	3911TZ-037090			
1/2	3.3/4	1.1/2	1/2	0.010	1.31/32	5	3911TZ-050010			
1/2	3.3/4	1.1/2	1/2	0.015	1.31/32	5	3911TZ-050015			
1/2	3.3/4	1.1/2	1/2	0.020	1.31/32	5	3911TZ-050020			
1/2	3.3/4	1.1/2	1/2	0.030	1.31/32	5	3911TZ-050030			
1/2	3.3/4	1.1/2	1/2	0.060	1.31/32	5	3911TZ-050060			
1/2	3.3/4	1.1/2	1/2	0.090	1.31/32	5	3911TZ-050090			
5/8	4.1/4	1.7/8	5/8	0.030	2.11/32	5	3911TZ-062030			
5/8	4.1/4	1.7/8	5/8	0.060	2.11/32	5	3911TZ-062060			
5/8	4.1/4	1.7/8	5/8	0.090	2.11/32	5	3911TZ-062090			
5/8	4.1/4	1.7/8	5/8	0.120	2.11/32	5	3911TZ-062120			
3/4	5	2.1/4	3/4	0.020	2.31/32	5	3911TZ-075020			
3/4	5	2.1/4	3/4	0.030	2.31/32	5	3911TZ-075030			
3/4	5	2.1/4	3/4	0.060	2.31/32	5	3911TZ-075060			
3/4	5	2.1/4	3/4	0.090	2.31/32					